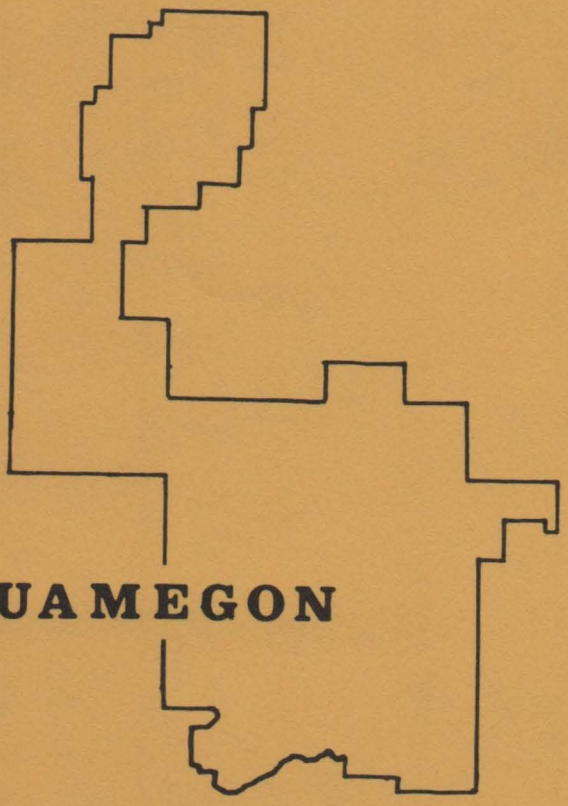
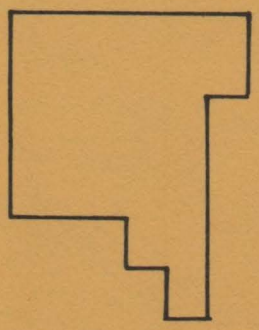
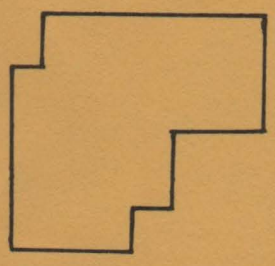
RECONNAISSANCE SURVEY

SPRUCE BUDWORM DEFOLIATION 1973



CHEQUAMEGON NATIONAL FOREST





USDA, FOREST SERVICE
NORTHEASTERN AREA
STATE and PRIVATE FORESTRY
FOREST PEST MANAGEMENT

REPORT NO. S-8-73

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August, 1973

5230

Reconnaissance Survey

Spruce Budworm Defoliation

on The

Chequamegon National Forest - 1973

By

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ABSTRACT

A spruce budworm, Choristoneura fumiferana (Clem.) outbreak was reported on the Hayward Ranger District. An aerial survey showed that moderate to heavy defoliation occurred in several white spruce plantations and balsam fir stands. High egg-mass counts indicate that heavy to severe defoliation will occur in 1974. Chemical treatment may be needed in the spruce plantations and commercial cutting done in balsam stands to reduce losses.

1/Forestry Technician, St. Paul Field Office

INTRODUCTION

Heavy defoliation of several white spruce plantations and balsam-fir stands by the spruce budworm, Choristoneura fumiferana (Clem.), was reported in July by the Hayward Ranger District. They requested an aerial defoliation and egg-mass survey be conducted especially in the pole size white spruce plantations.

Varying degrees of damage have occurred on the forest since it was last reported in 1969 (Millers, et al, 1970).

SURVEY METHODS

Aerial Survey

An aerial survey was flown in mid-July to delineate the infestation boundaries using the standard aerial survey methods. Moderate to heavy defoliation was sketch mapped and the cause confirmed by ground checks.

Ground Survey

An egg-mass and defoliation survey was completed in late July. Samples were taken from 4 white spruce and 3 balsam-fir plots, (distribution shown in Figure 1). A sample consists of three 15" twigs, taken from mid-crown of 3 trees (total of 9 twigs per plot). Each twig was examined for egg-masses and defoliation estimates taken and correlated with the defoliation of the trees as a whole in the general vicinity of the plots. Defoliation of each twig was classed as follows:

Class	Current Defoliation
0	None
1	5-25%
2	26-50%
3	51-75%
4	75%+

Defoliation of the 9 twigs were averaged to come up with a class for each plot (Table 1).

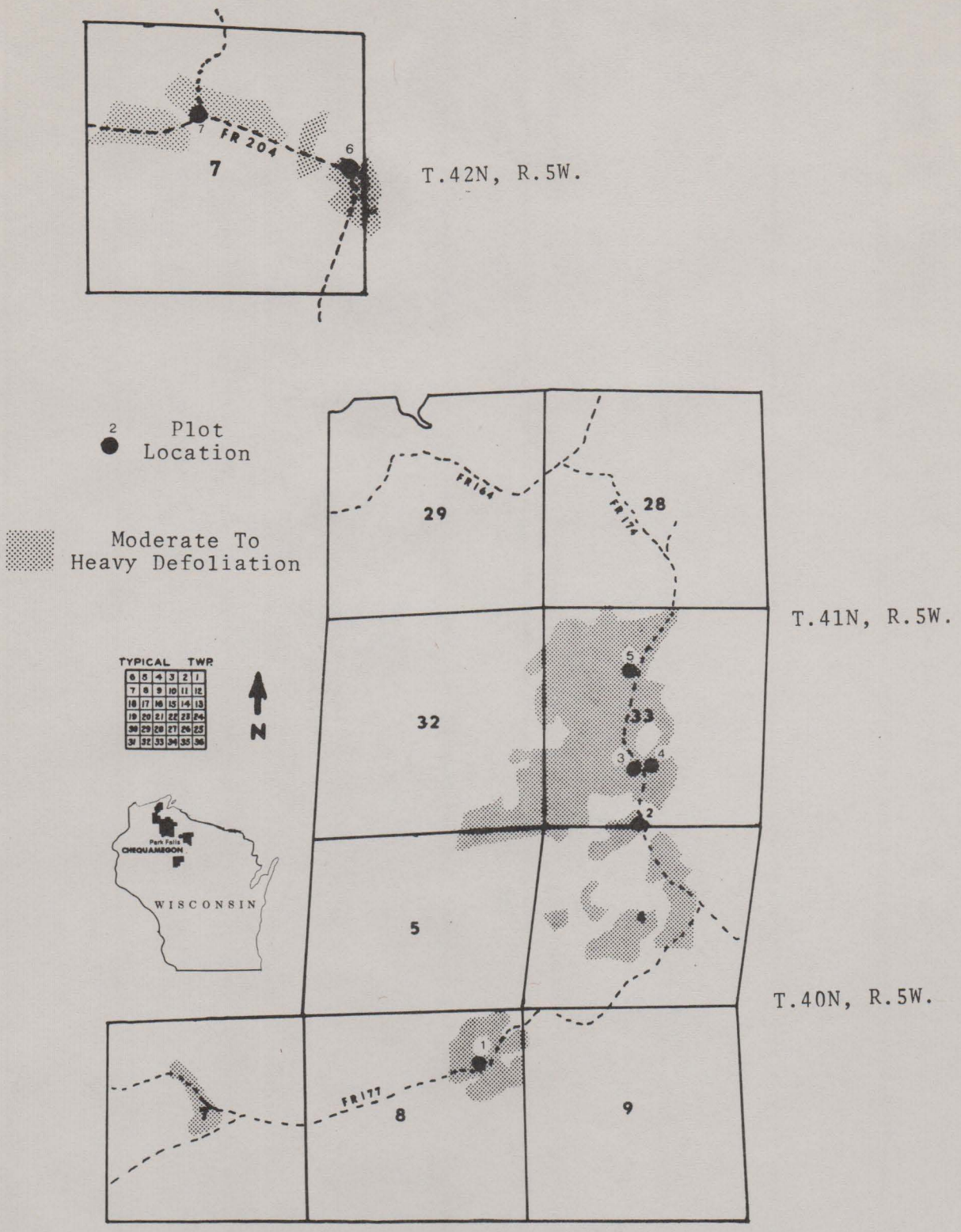

Figure 1. Spruce budworm defoliation and egg-mass plot locations on the Chequamegon N.F. - 1973.

Table 1. Spruce budworm egg-mass counts and defoliation on the Chequamegon N.F. - 1973

Plot No.	Total Egg-masses	Defoliation Class
	WHITE SPRUCE PLOTS	
1	25	1
2	76	2
3	55	1
5	31	3
	BALSAM FIR PLOTS	
4	18	2
6	22	3
7	25	3

RESULTS AND DISCUSSION

Moderate to heavy defoliation occurred to several white spruce plantations (approx. 500 acres) in T.40 and 41N., R.5W. Damage was confined to the current shoots with indications that light budworm feeding also occurred in 1972. On the average, an estimated 50% of the needles were defoliated on the spruce. Egg-mass counts (4 plots) indicate a very high budworm population for 1974. Populations of 16+ egg-masses per sample plot usually result in heavy to severe defoliation the following year. The populations in these stands ranged from 25-76 egg-masses per plot.

Heavy to severe defoliation also occurred to the balsam fir in T.42N., R5W. Sec. 7 (Fig. 1). The high egg-mass (18-25) counts in the area indicate severe defoliation can be expected in 1974.

This infestation of the budworm is currently on the upward trend. Increased defoliation and damage will result in the next few years in the infested white spruce plantations and balsam fir stands.

RECOMMENDATIONS

1. Chemical suppression should be considered in those white spruce plantations where heavy defoliation and high egg counts are present.

2. Commercial cutting of the mature balsam fir in T.42N., R5W., Sec. 7 could reduce the amount of damage if chemical suppression is not desirable.

3. If a suppression action is tentatively indicated, that information should be sent to the St. Paul F.O. for needed follow-up action.

4. All forest field going personnel should report any new outbreak areas to FPM (use Form 5200-1).

References Cited

Millers, I. and Erickson, G. W., 1970. Biological evaluation of spruce budworm on the Chequamegon National Forest. USDA, Forest Service, Northeastern Area, State & Private Forestry, St. Paul Field Office, Report No. S-69-58, 7 pp.